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MELOIDOGYNE AND HETERODERA SPECIES ASSOCIATED WITH SUGARBEET IN GREECE

by
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Summary. *Meloidogyne incognita*, *M. javanica* and *Heterodera schachtii* have recently been found on sugarbeet roots in Greece. Some morphological observations and measurements are given of *H. schachtii*, which is reported for the first time from Greece.

To determine the presence of plant parasitic nematodes in sugarbeet crops (*Beta vulgaris* L.) in Greece, especially *Meloidogyne* and *Heterodera* species, a limited survey was undertaken in autumn 1990 and August 1991.

Soil and root samples were taken from crops showing below average growth on farms in Evros County, West Thraki (1990) and Agros in Stavros Imathia (1991).

In 1990 *Meloidogyne incognita* (Kofoid *et* White) Chitw. and *M. javanica* (Treub) Chitw. were found on sugarbeet roots but their presence did not appear to obviously impair growth. In some cases mixed populations of the two species occurred.

Heterodera schachtii Schmidt was found on sugar-beet sampled in 1991, associated with patches of stunted plants with yellowing foliage typical of "Beet sickness".

The identification of *H. schachtii* was based mainly on the characteristic vulval structure and on the morphology and measurements of the second stage juvenile. These corresponded with the descriptions of Hesling (1965) and Mulvey (1972).

The measurements of the Greek specimens are as follows:

Mature female (n: 10) ♀♀: L = 624-884 (757) μ m; width = 385-530 (491) μ m; stylet = 27 μ m; vulval slit length = 34-45 (40) μ m.

Cysts (n: 20): L = 676-842 (761) μ m; width = 395-530 (496) μ m.

Measurements of ten cysts:

Fenestral length = 32-37 (34) μ m < 38.7 μ m; width = 25-30 (28.4) μ m; width vulval bridge = 7-10 (8) μ m; length underbridge = 65-95 (85) μ m; width = 17-18 (17.8) μ m; depth below fenestra = 32-34 (33) μ m.

Second stage juvenile (n: 10): L = 420-478 (458) μ m; width = 20-22 (21) μ m; stylet = 23-28 (25) μ m; stylet base to dorsal oesophageal gland duct = 3-4 (3.5) μ m; hyaline tail region = 21-30 (25.4) μ m; hyaline tail length / stylet length under 1.5.

♂♂ (n: 5): L = 0924-1092 μ m; width = 31-32 μ m; a = 30-35; stylet = 22-28 (27) μ m; spicule length = 30-32 μ m; gubernaculum length = 10-11 μ m.

Eggs (n: 40): 102-114 (108) μ m X 42-56 (49) μ m.

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Literature cited

- HESLING J. J. 1965. *Heterodera* - Morphology and identification. In *Plant Nematology. Techn. Bull. No 7*. Plant Path Laboratory. Harpenden, England. pp. 103-130.
- MULVEY R. H. 1972. Identification of *Heterodera* cysts by terminal and cone top structures. *Can. J. Zool.* 50: 1277-1292